International Journal of Current Science Research and Review

ISSN: 2581-8341

Volume 06 Issue 07 July 2023

DOI: 10.47191/ijcsrr/V6-i7-56, Impact Factor: 6.789

IJCSRR @ 2023

www.ijcsrr.org

The Development of Environment-Based Visual Media to Enhance Learning Outcomes and Student Motivation in Science Course

Lidya Ratri Mayarita[1,3*], Dafik[2], Trini Prastati[1]

[1]Postgraduate Department of Primary Education, Universitas Terbuka, Indonesia

[2]Department of Mathematics Education Postgraduate, Universitas Jember, Indonesia

[3]SDN Kotakulon 2, Bondowoso, Indonesia

ABSTRACT: Learning media plays a crucial role in education, especially in facilitating student understanding and motivation. In this era of rapid technological advancement, learning media has expanded to include various forms such as audio, visual, and multimedia. To enhance learning outcomes, teaching media needs to be utilized as a source of learning for students, including environmental media as a learning resource. Visual media is expected to improve students' understanding of ecological theme concepts in line with the intended objectives. This study employs the Research and Development (RnD) method in developing learning media, requiring a suitable instructional model that aligns with the content's characteristics. The ADDIE (Analysis - Design - Development - Implementation - Evaluation) development model is used in developing the Microsoft PowerPoint tutorial video media. Normality tests for the variables were conducted using the Kolmogorov-Smirnov test. Based on the normality test results using SPSS 15 for Windows and the Kolmogorov-Smirnov technique, the values obtained were (0.120), (0.165), (0.114), and (0.127) with significance values of (0.200), (0.092), (0.200), and (0.200) respectively. When the significance level is set at 0.05, the significance values are more significant than 0.05. Subsequently, hypothesis testing (T-test) was conducted to determine the difference in using environment-based visual media between the control and experimental groups using the t-test formula. The t-test formula was used to determine the difference in students' critical thinking abilities, both in the SPSS 20 for Windows calculation using Separated Variance, as the data exhibited non-homogeneity of variance. The hypothesis testing results indicate that the samples are non-homogeneous, with a calculated t-value of 6.833 and a significance level 0.000. When the significance level is 0.05, the significance value is much smaller than α. Thus, it can be concluded that environment-based visual media influences students' learning motivation in the Science subject at grade 5 of SDN Kotakulon 2 Bondowoso. Based on the calculation and data analysis, it can be inferred that the hypothesis testing results support Ha (alternative hypothesis) and reject Ho (null hypothesis), meaning there is an influence between the variable (x) of environment-based visual media development and the variable (y) of student learning motivation.

KEYWORDS: Learning Outcomes, Student Motivation, Visual Media.

INTRODUCTION

The growth of the education sector in the last decade has been impressive. However, we must realize that remarkable development sometimes solves all educational problems. In anticipation of the increasingly competitive global era due to globalization, fundamental changes have greatly influenced various aspects of life, including education. Along with these developments, improvements and changes have been made to all education system components.

To achieve effective and efficient learning, instructional materials, learning activities, and assessment tools need to be developed to achieve learning objectives. One important component that plays a crucial role and contributes to the success of education delivery is learning media. Learning facilities can be highly beneficial and effective if packaged in good instructional media. To enhance learning outcomes, learning media needs to be utilized as a source of learning for students, including environmental media as a learning resource. Visual media is expected to improve students' understanding of ecological theme concepts in line with the intended objectives.

Media refers to all forms and channels used to convey information or messages. Many experts and organizations provide definitions of media. According to Mudlofir and Rusydiyah (2017: 121), the word "media" comes from Latin and is the plural form of the term "medium," which means "intermediary or mediator." According to Soeparna (in Rahayu 2013: 22), media is a tool used

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 06 Issue 07 July 2023
DOI: 10.47191/ijcsrr/V6-i7-56, Impact Factor: 6.789
IJCSRR @ 2023
www.ijcsrr.org

as a channel to convey messages or information from a source to the message recipients. Another definition of media is provided by Munadi (2010: 7-8), stating that media is anything that can transmit and deliver messages from a source in a planned manner, creating a conducive learning environment in which recipients can engage in efficient and effective learning processes. Additionally, Djamarah (2010: 121) explains that media is any tool that can be used as a channel to deliver messages to achieve teaching objectives.

Based on the above opinions, media is a tool that can be used to convey information. This information is expected to stimulate the thoughts, feelings, attention, and interests of others. Moreover, media enhances communication and interaction between teachers and students (Muslina et al., 2017). One crucial consideration in presenting instructional media is optimization. Ali Rahman (2018) states that technology-based media should be optimized, meaning that the value shown through ICT media should be broad, relevant (in line with the situation), and open. The effectiveness of instructional media is not determined by how advanced and modern the tools educators use but rather by the suitability of the media for the subject matter (Rohani, 2019).

Likewise, in the teaching and learning process, especially implementing environment-based visual media in the Science subject in elementary schools (Utami, 2011). The level of students' learning motivation in Science will significantly influence the learning outcomes they achieve.

Learning motivation is the internal and external drive of students studying to bring about behavioral changes. The indicators of learning motivation are: (1) the presence of desire and a will to succeed, (2) the presence of drive and need in learning, (3) the presence of hopes and future aspirations, (4) the presence of rewards in learning, (5) the presence of engaging activities in the learning process, (6) the presence of a conducive learning environment that enables students to learn effectively (Afriana & Prastowo, 2022). Learning motivation stems from the goals individuals want to achieve. If individuals are determined to achieve their goals, motivation will consciously develop within them. Learning motivation is a psychological factor that determines the emergence of the drive to achieve goals, characterized by awareness of learning, high enthusiasm, and attention to the learning process (Febriandar, 2018).

Based on observations conducted by the researcher, particularly in SDN Kotakulon 2 Bondowoso in the Science subject, teachers still employ conventional teaching methods. Additionally, media utilization to support teaching and learning activities is limited. This can be seen in how teachers implement teaching methods without accompanying instructional media, ultimately leading to a lack of attractiveness or motivation for students to engage in the learning process until the end. Such learning activities make students bored. As a result, the learning becomes less meaningful, and students cannot acquire a memorable learning experience. Therefore, teachers must be skilled in selecting teaching models, especially in preparing attractive learning media for all their students.

Based on these reasons, the researcher is interested in conducting further in-depth research on the extent of student's motivation to learn the Science subject, particularly in how enjoyable and memorable they find the teacher's instructional materials and how it can enhance students' learning motivation.

METHODOLOGY

In developing instructional media, an instructional model that aligns with the content's characteristics is required. The development model used for the video tutorial media on Microsoft PowerPoint utilizes the ADDIE (Analysis - Design - Development - Implementation - Evaluation) development model (AECT, 2008 & Pribadi, 2009). The ADDIE model was chosen because this research falls under development research that follows a sequential development process. The stages of development using the ADDIE model can be seen in Fig 1.

RESULTS

This study utilizes the Research and Development (R&D) approach, with the developed product being environment-based visual media and its influence on learning motivation. Based on the research and development conducted, the following research findings were obtained:

A. Analysis

The first stage of this study is Analysis. In this stage, performance analysis and needs analysis are conducted. a) Performance analysis: The identified problem is the need for instructional media presented to students and the low learning motivation among students. Therefore, there is a need to develop environment-based visual instructional media containing the water cycle and its impacts. b) Needs analysis: The needs analysis aims to assess the extent to which Science learning is implemented in grade V at

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 06 Issue 07 July 2023
DOI: 10.47191/ijcsrr/V6-i7-56, Impact Factor: 6.789
IJCSRR @ 2023
www.ijcsrr.org

SDN 2 Kotakulon Bondowoso. The competency standards students in grade V at SDN 2 Kotakulon Bondowoso should master are related to the water cycle.

Based on the interviews with the sources, it was found that in the first semester of the 2019/2020 academic year, SDN 2 Kotakulon Bondowoso started implementing the 2013 curriculum. The classroom teacher expressed difficulties in implementing teaching and learning activities according to the 2013 curriculum. As we know, the 2013 curriculum emphasizes student-centered learning, meaning learning activities center on students. However, it is challenging to implement this in practice.

The classroom teacher identified two factors causing the abovementioned problems: first, students' lack of participation in learning activities. In the classroom, when students are asked to practice or understand the water cycle, they appear less engaged and motivated, resulting in one-way and less effective learning. The second factor is the instructional materials used. The classroom teacher explained that not all students have textbooks, so some only rely on the teacher's explanations, leading to confusion in implementing the materials.

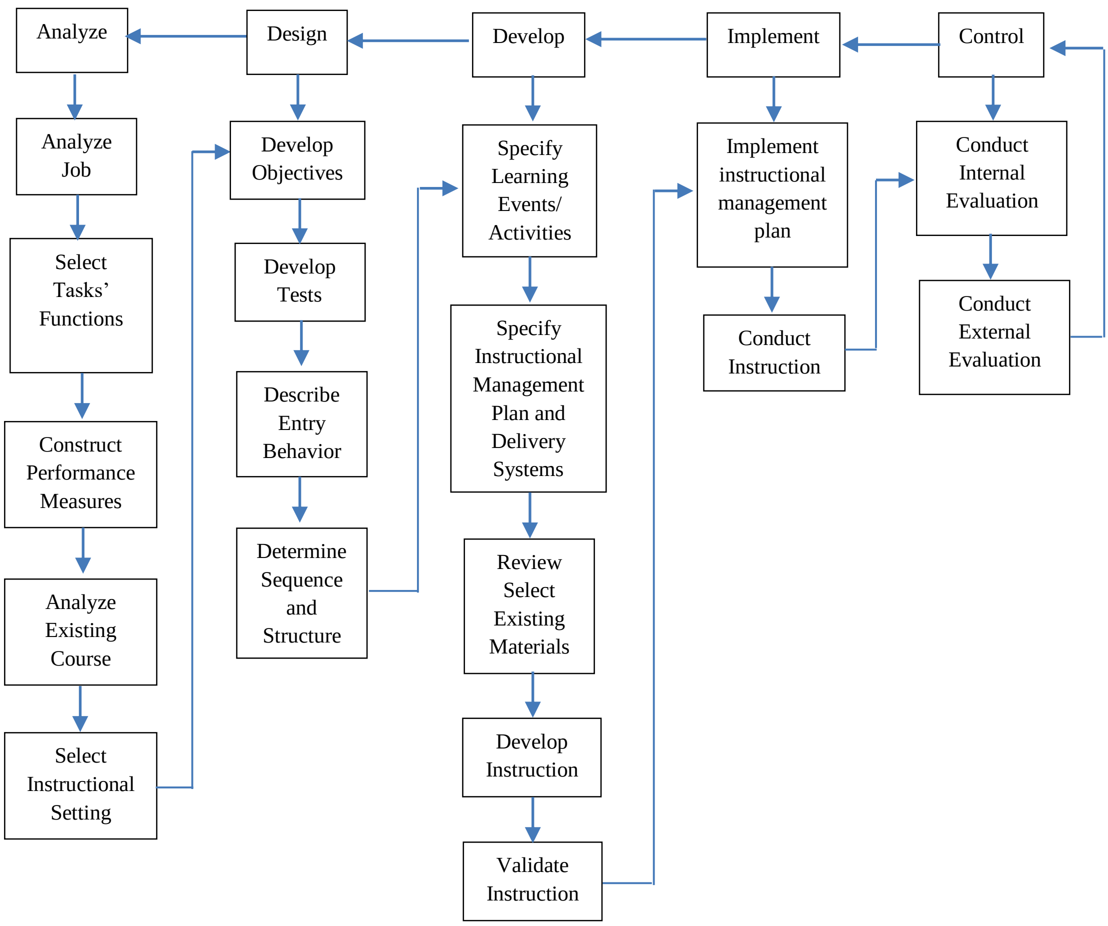

Fig. 1. ADDIE Development Stage

To facilitate learning activities, the teacher tried to summarize the content to be taught so that students could receive more concise information. However, this still needed to be considered effective because many students scored below the Minimum Mastery Criteria (KKM) based on previous daily assessments. The KKM for the Science subject is 75.

Based on the abovementioned issues, the researcher proposed developing visual instructional media based on the environment. The classroom teacher highly supported this innovation because, as mentioned earlier, the current teaching methods have various areas for improvement.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 06 Issue 07 July 2023
DOI: 10.47191/ijcsrr/V6-i7-56, Impact Factor: 6.789
IJCSRR @ 2023
www.ijcsrr.org

Based on the observations, there is a need to develop environment-based visual instructional media to facilitate students' active engagement in concept mastery. Therefore, the researcher developed instructional media focusing on the water cycle to help students better understand the learning process and increase their motivation.

B. Design

The second stage of the ADDIE development model is the design stage. In this stage, the researcher begins developing the instructional media.

The design elements in this study include:

a. They are assessing students' abilities after participating in the learning process. Observations are conducted to assess students' abilities to determine their initial capabilities. Before learning about the water cycle, students have already received information about changes in the states of water.

b. After utilizing the instructional media, they are preparing the tools and materials students need to demonstrate their competencies in knowledge and skills.

C. Development

The third stage of the ADDIE development model is the development stage. This stage aims to assess the feasibility of the instructional module that has been designed. After obtaining the feasibility assessment, the instructional media is revised according to the critiques and suggestions provided by the validator.

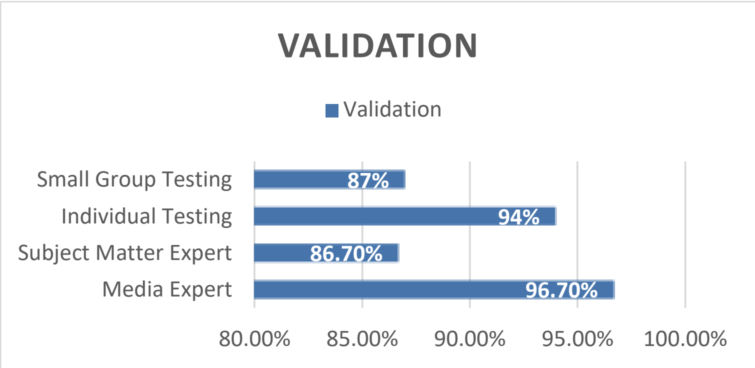

Fig. 2. Validation Results from Small Group Trials, Individual Trials, Subject Matter Experts, and Media Experts

The development of environment-based visual media is done by adjusting the needs analysis for both the researcher and the students. The steps involved are as follows:

a) Producing environment-based visual media.

b) In this stage, the production process occurs after preparing relevant images.

c) Selecting the best combination to obtain images that align with the theme.

d) Developing the production results for validation. The validators consist of two media experts. The validation results are as follows: Based on the assessment of media experts, as shown in the analysis table, a percentage of 96.7% was obtained, as seen in Fig 2. After converting the data interpretation table, it indicates that the developed product falls into category A, which means it is highly valid and does not require revisions. The comments and suggestions given by the media experts regarding the visuals were quite positive. The recommendations and comments included improving text composition, font size, and image clarity to make them more harmonious. Adding more composition and color collaboration in the environment-based visual media was recommended to make it more appealing. The data analysis from the questionnaire provided to the media experts was used to revise the visual media product for better quality. Modifications were made even though the outcome was deemed acceptable, with revisions based on the percentage for better validity and incorporating suggestions from media experts. The revisions included changes in the text composition, and font size, improving image harmony, and adding more composition and color collaboration in the environment-based visual media to make it more attractive and prevent boredom.

Based on the assessment of subject matter experts, as shown in the analysis table, a percentage of 86.7% was obtained. After converting it using the data interpretation criteria table, it indicates that the developed product falls into category "A," which means it is highly valid and does not require revisions. The comments and suggestions provided by the subject matter expert were positive. The comments and recommendations included: 1) improving the narration for smoother pronunciation when reading, 2) presenting some images in more detail to enhance students' understanding of the intended message, and 3) presenting a wider variety of colors in the visual media to ensure the relevance of the conveyed content. The data analysis from the questionnaire provided to the subject matter expert was used to revise the environment-based visual media product to achieve better results. After the assessment by the subject matter expert, a percentage of 86.7% was obtained, and the product was classified as "highly valid" and did not require revisions.

Even though the product was deemed not to need revisions based on the percentage, modifications were made for the sake of better validity and incorporating suggestions from the subject matter expert. The revisions included: 1) improving the narration for smoother pronunciation when reading, 2) presenting some images in more detail to enhance students' understanding of the intended message, and 3) presenting a wider variety of colors in the visual media to ensure the relevance of the conveyed content.

Based on the assessment of the individual trial conducted with the three respondents described above, 94% was obtained. After converting it using the data interpretation criteria table, it indicates that the developed product falls into category "A," which means it is highly valid and does not require revisions. This was the third revision conducted.

Out of the 15 questions presented, in question item number 2 related to the acceptance of content delivery in the environment-based visual media, item number 5 related to articulation and narration, and item number 12 related to the accuracy of image composition, there was only one "no" response from the respondents in the questionnaire. However, this is considered normal and can be addressed with the help of peer tutors or through individual review of the visual media and discussions with the teacher as a facilitator in the learning process.

After completing the individual trial stage, the next step in designing this media development product is to conduct a small group trial of the instructional video tutorial media. The small group trial involved five student respondents currently studying the Science subject to assess the feasibility of the developed environment-based visual media in facilitating student learning. According to Mustaji (2009:112), the evaluation includes (a) suitability of the content and ease of learning, (b) compatibility of competencies with learning tasks, and (c) attractive presentation format for learning.

The small group trial helps identify any shortcomings that may have yet to be apparent during the production of the product. Data from the small group trial were collected through questionnaires given to fifth-grade students.

Based on the assessment of the small group trial conducted with five respondents, as shown in the data analysis table, a percentage of 87% was obtained. After converting it using the data interpretation criteria table, it indicates that the developed product falls into category "A," which means it is highly valid and does not require revisions. Therefore, based on the obtained qualification, no revisions were needed for the product in this trial stage.

D. Implementation

The fourth stage of the ADDIE development model is the implementation stage. After being deemed appropriate by the validators, the environment-based visual learning media is implemented in the classroom. Twenty-four students follow this stage.

a. First stage

During the first meeting, the students understood the learning instructions provided by the teacher, and the teacher explained to those still confused. In the core activity, students preferred working in groups rather than individually. The challenge faced during the first meeting was that students needed clarification about what would happen next. The researcher also conducted a pre-test.

b. Second stage

In the second meeting, the students already understood the learning instructions guided by the teacher, but the teacher needed to provide motivation and further explanation to ensure better understanding. The challenge faced during the second meeting was the limited time of only one lesson hour, which resulted in the inability to complete the practical learning on that day. Based on this, the following learning session was continued in the next meeting.

c. Third stage

In the third meeting, the students understood the learning instructions conveyed by the teacher, and the teacher provided motivation and explanations to ensure better understanding. There were no further challenges experienced. The learning process went well and according to plan. After the students watched the visual content displayed by the teacher, they immediately practiced by applying the environment-based theme.

International Journal of Current Science Research and Review
ISSN: 2581-8341
Volume 06 Issue 07 July 2023
DOI: 10.47191/ijcsrr/V6-i7-56, Impact Factor: 6.789
IJCSRR @ 2023
www.ijcsrr.org

d. Fourth stage

In the fourth meeting, the students already understood the learning instructions in the module, and the teacher provided motivation and further explanations to ensure better understanding. There were no further challenges experienced. The learning process went well and according to plan. Additionally, the researcher began administering the post-test.

Next, we conducted a normality test on the pre-test and post-test scores. The normality test was performed using an online available R application. After completing the normality test, a p-value of 0.37 was obtained, indicating that the data followed a normal distribution. The results of the normality test can be seen in Fig. 3.

statistic	p.value	method	data.name
0.96	0.37	Shapiro-Wilk normality test	datasetInput()[, input$var.y]
0.96	0.37	Shapiro-Wilk normality test	datasetInput()[, input$var.y]

Fig. 3. Normality Test Results

After confirming that the data is normally distributed, we conducted another statistical test, the paired sample t-test using the R application. The results of the paired sample t-test in Fig. 4 show that the obtained p-value is 2.2×10^(-16). Based on these results, we received a p-value<0.05, indicating a significant difference between the pre-test and post-test scores. Therefore, it can be concluded that there is a significant impact of implementing environment-based visual media.

++ SET DATA ▾ CEK NORMALITAS ▾ STATS DASAR ▾ REGRESI ▾ NONPARAMET

```
Uji-T 2-Kelompok Berpasangan: Data= IMPOR Y1= Pretest Y2= Postest

        Paired t-test

data:  datasetInput()[, input$var.yt2p1] and datasetInput()[, input$var.yt2p2]
t = -49.099, df = 25, p-value < 2.2e-16
alternative hypothesis: true mean difference is not equal to 0
95 percent confidence interval:
 -26.97038 -24.79885
sample estimates:
mean difference
      -25.88462
```

Fig. 4. Paired Sample T-Test Results

E. Evaluation

The fifth stage of the ADDIE development model is the evaluation or assessment stage. After the implementation phase, an evaluation procedure is carried out through a developmental trial.

In the context of learning, to determine the effectiveness of a developed instructional media, a pre-test and post-test are conducted for the learning process that utilizes environment-based visual media. The developmental trial design includes control and experimental groups to ensure more accurate research data. The control group does not receive visual media compared to the experimental group, which is exposed to the environmental-based visual media treatment. Before the trial, the developer performs two main activities: 1) validity testing of the learning outcomes assessment instrument and 2) reliability testing of the learning outcomes assessment instrument.

Validity testing is used to assess the validity of each item in the test instrument. An instrument is considered valid if its content represents a sample representative of the measured content. To test the validity of the assessment instrument, the product-moment correlation formula by Supardi (2013:169) is used. The results of the validity test, with the assistance of Microsoft Office Excel 2007, can be presented in the following table:

Table 1. Validity Test

NO	R (Calculated)	R (Table)	Description
1	8,220701	2,109816	VALID
2	2,565255	2,109816	VALID
3	0,721095	2,109816	INVALID
4	8,220701	2,109816	VALID
5	8,220701	2,109816	VALID
6	1,62972	2,109816	INVALID
7	8,220701	2,109816	VALID
8	2,993231	2,109816	VALID
9	3,630125	2,109816	VALID
10	2,797756	2,109816	VALID
11	8,220701	2,109816	VALID
12	4,266673	2,109816	VALID
13	8,220701	2,109816	VALID
14	8,220701	2,109816	VALID
15	2,565255	2,109816	VALID
16	8,220701	2,109816	VALID
17	2,565255	2,109816	VALID

From the table above, it is known that if all test values have an R (calculated) > R (table) value, the item is considered VALID. However, if it is the opposite, it is considered INVALID. The output above shows that the R (calculated) values for items 1 to 17 indicate that two items are INVALID and 15 are VALID.

Reliability testing determines whether an instrument can be trusted or relied upon for research. The reliability test is conducted using the Cronbach's Alpha technique. The reliability test is used to assess the consistency of the measuring instrument, whether it can be accounted for and remains consistent when the measurement is repeated. The reliability results are presented in the following table:

Table 2. Reliability Test

No	Coefficient of Reliability	Description
1	0,94221959	Very High

Furthermore, the reliability data is measured using the Cronbach's alpha technique. The case processing summary output explains the number of valid data for processing. The decision rule for reliability is using the threshold $\alpha = 0.6$. According to Sekran (in Priyatno, 2012:187), reliability less than 0.6 is considered poor, while 0.7 is acceptable, and above 0.8 is considered good.

Based on the above explanation, Cronbach's Alpha value for the learning outcomes test variable is 0.942. Since the value is greater than 0.6, it can be concluded that the research instrument is reliable. In the development of environmentally-based visual media, the researcher attempts to apply weight to the visual media, meaning that the presented images can provide accurate explanations related to the conveyed message to the students through the images.

Furthermore, the reliability data is measured using the Cronbach's alpha technique. The case processing summary output explains the number of valid data for processing. The decision rule for reliability is using the threshold $\alpha = 0.6$. According to Sekran (in Priyatno, 2012:187), reliability less than 0.6 is considered poor, while 0.7 is acceptable, and above 0.8 is considered good. Based on the above explanation, Cronbach's Alpha value for the learning outcomes test variable is 0.882. Since the value is greater than 0.6, it can be concluded that the research instrument is reliable.

This section discusses several aspects related to media development's influence, starting with normality testing. This determines whether the data comes from a normally distributed population. Normality tests for the variables are conducted using the Kolmogorov-Smirnov test. Based on the normality testing results using SPSS 15 for Windows with the Kolmogorov-Smirnov technique, the values are (0.120), (0.165), (0.114), (0.127) with significance values of (0.200), (0.092), (0.200), (0.200). If a significance level 0.05 is set, the p-values are more significant than 0.05.

Then, the homogeneity test is conducted to determine whether the data in variables X and Y are homogenous. This test is a prerequisite for t-test analysis. As for the criteria for the test, if the significance value is greater than 0.05, the variances of the two or more data groups are equal. The homogeneity test aims to determine whether the data have the same variances among several groups.

From the calculation presented in the data, the F value is 3.359 with numerator degrees of freedom (df) of 3 and denominator degrees of freedom of 92, and the significance value (sig) is 0.022. When a significance level of 0.05 is determined, the sig value is significantly smaller than the alpha value, indicating that all data groups have non-homogeneous variances. The df1 value is k-1, and the df2 value is obtained from n-k, where k represents the number of variables.

Next, using the T-test formula, a hypothesis test (T-test) is conducted to determine the difference in the use of environmentally-based visual media between the control group and the experimental group. The T-test formula is used to assess the difference in critical thinking skills among students, either using SPSS 20 for Windows with the Separated Variances method due to the non-homogeneity of the data variances.

The results of the hypothesis testing indicate that the samples are non-homogeneous, with a calculated t-value of 6.833 and a significance level of 0.000. Suppose the significance level is set at 0.05. In that case, the sig value is significantly smaller than α, thus concluding that environmentally-based visual media influences the motivation to learn natural science subjects in grade 5 students at SDN Kotakulon 2 Bondowoso.

Therefore, based on the calculations and data analysis, it can be concluded that the hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected, indicating an influence between the variable (x) of environmentally-based visual media development and the variable (y) of student learning motivation.

DISCUSSION

The development of environment-based visual media has proven to enhance student's learning outcomes and motivation in the science subject at SDN Kotakulon 2 Bondowoso. This is evident from the paired sample t-test conducted during the implementation phase, which yielded a p-value of 2.2×10^(-16). The p-value < 0.05 indicates a significant difference between the pre-test and post-test scores. Therefore, it can be concluded that there is a significant impact of implementing environment-based visual media. This finding is consistent with the research conducted by Yudasmara and Purnami (2015), which showed an improvement in students' learning outcomes after using interactive learning media.

The developed interactive learning media can motivate students in their learning process. This can be observed from the improved test results of the students. The presence of learning motivation among students helps them achieve optimal learning outcomes. This motivation arises because the learning media encourages independent learning in an enjoyable atmosphere. This aligns with the statement by Arsyad (2017) that learning media can enhance and direct children's attention, leading to learning motivation, direct interaction between students and their environment, and allowing students to learn individually according to their abilities and interests. An engaging and enjoyable learning environment facilitates students' learning and results in a better understanding of the subject matter.

CONCLUSION

Based on the data and discussions obtained during the development and testing of the environmentally-based visual media about learning motivation in the science subject for Grade 5 students at SDN Kotakulon 2 Bondowoso, it can be concluded that the process of developing environmentally-based visual media for student learning motivation in this study is considered good, of quality, and suitable for use, as indicated by the analysis of the data showing good values. Furthermore, the results of developing environmentally-based visual media for learning motivation in the science subject for Grade 5 students at SDN Kotakulon 2 Bondowoso showed improvement, as evident from the high t-value. Developing environmentally-based visual media for learning motivation has proven significantly effective, providing significant outcomes. With the implementation of such learning, it can be effective.

ACKNOWLEDGMENT

We would like to thank Universitas Terbuka, and especially the lecturer and members of the Universitas Terbuka for their outstanding guidance and support for finishing this paper in the year 2023.

REFERENCES

1. Afriana, S. & A. Prastowo. (2022). Using e-Comic Learning Media to Foster Motivation and Enthusiasm for Learning in Elementary School Students. Didaktis: Journal of Education and Science, 22(1), 41-56.
2. Arikunto, S. (2016). Research Procedures: A Practical Approach. Jakarta: Bina Aksara.
3. Arikunto, S. (1988). Fundamentals of Educational Evaluation. Jakarta: Bina Aksara.
4. Arsyad, A. (2017). Learning Media. Jakarta: PT. Rajagrafindo Persada.
5. Azwar, Syaifuddin. (2003). Reliability and Validity. Yogyakarta: Pustaka Pelajar.
6. Febriandar, E. I. (2018). The Influence of Teacher Creativity in Implementing Ice Breaking and Learning Motivation on Elementary School Students' Learning Outcomes. Brilliant: Journal of Research and Conceptual, 3(4), 498.
7. Hamalik, O. (2010). Teaching Media. Bandung: Alumni.
8. Latuheru, J. (2010). Learning Media in Contemporary Teaching-Learning Processes. Jakarta: Ministry of Education and Culture.
9. Mudlofir, Ali, Evi Fatimur Rusydiyah. (2017). Innovative Learning Design. Jakarta: Rajawali Pers.
10. Ministry of Education and Culture. (2016). Ministerial Regulation of the Republic of Indonesia in 2016 on the Standards of Basic and Secondary Education Processes.
11. Muslina, Halim, A., & Khaldun, I. (2017). Feasibility of Newton's Second Law Animation Media on Inclined Plane and Pulley in Senior High Schools in Aceh Besar Regency. JIPI (Journal of Science and Science Education), 1(1), 64-72.
12. Rahman, A. (2018). Designing Models and Learning Materials Based on Information Technology. Al-Ishlah: Journal of Islamic Education, 16(2), 128–143.
13. Rohani. (2019). Learning Media Lecture Notes. Faculty of Tarbiyah and Teacher Training, State Islamic University of North Sumatra, 1–95.
14. Sadiman, A.S. (2014). Educational Media: Definition, Development, and Utilization. Jakarta: PT. Rajagrafindo Persada.
15. Utami, D. (2011). Animation in Learning. Scientific Journal of Learning, 1(7), 44-52.
16. Yudasmara, G. A. & D. Purnami. (2015). Development of Interactive Biology Learning Media to Improve Learning Outcomes of Junior High School Students. Journal of Education and Teaching, 48(1-3), 1-8.